Combined effects of inorganic carbon and light on Phaeocystis globosa Scherffel (Prymnesiophyceae)

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Table S1: Cell abundance (in triplicates) during the experiment.

	High Light			Low Light		
Time (d)	Low $CO_{2(aq)}$	Intermediate $CO_{2(aq)}$	High $CO_{2(aq)}$	Low $CO_{2(aq)}$	Intermediate $CO_{2(aq)}$	High $CO_{2(aq)}$
13.0	$1.64 \cdot 10^4$	$1.56 \cdot 10^4$	$1.44 \cdot 10^4$	$1.50 \cdot 10^4$	$1.47 \cdot 10^4$	$1.39 \cdot 10^4$
	$1.44 \cdot 10^4$	$1.50 \cdot 10^4$	$1.44 \cdot 10^4$	$1.58 \cdot 10^4$	$1.45 \cdot 10^4$	$1.39 \cdot 10^4$
	$1.51 \cdot 10^4$	$1.49 \cdot 10^4$	$1.37 \cdot 10^4$	$1.53 \cdot 10^4$	$1.40 \cdot 10^4$	$1.42 \cdot 10^4$
13.8	$5.15 \cdot 10^4$	$4.63 \cdot 10^4$	$3.65 \cdot 10^4$	$3.60 \cdot 10^4$	$3.48 \cdot 10^4$	$3.63 \cdot 10^4$
	$5.05 \cdot 10^4$	$4.50 \cdot 10^4$	$3.60 \cdot 10^4$	$3.57 \cdot 10^4$	$3.50 \cdot 10^4$	$3.60 \cdot 10^4$
	$5.05 \cdot 10^4$	$4.55 \cdot 10^4$	$3.59 \cdot 10^4$	$3.66 \cdot 10^4$	$3.45 \cdot 10^4$	$3.66 \cdot 10^4$
14.0	$1.73 \cdot 10^4$	$1.54 \cdot 10^4$	$1.41 \cdot 10^4$	$1.49 \cdot 10^4$	$1.39 \cdot 10^4$	$1.35 \cdot 10^4$
	$1.58 \cdot 10^4$	$1.51 \cdot 10^4$	$1.49 \cdot 10^4$	$1.55 \cdot 10^4$	$1.39 \cdot 10^4$	$1.37 \cdot 10^4$
	$1.61 \cdot 10^4$	$1.48 \cdot 10^4$	$1.43 \cdot 10^4$	$1.52 \cdot 10^4$	$1.31 \cdot 10^4$	$1.42 \cdot 10^4$
14.7	$5.25 \cdot 10^4$	$4.41 \cdot 10^4$	$3.69 \cdot 10^4$	$3.77 \cdot 10^4$	$3.54 \cdot 10^4$	$3.64 \cdot 10^4$
	$5.52 \cdot 10^4$	$4.43 \cdot 10^4$	$3.78 \cdot 10^4$	$3.75 \cdot 10^4$	$3.63 \cdot 10^4$	$3.68 \cdot 10^4$
	$5.43 \cdot 10^4$	$4.31 \cdot 10^4$	$3.69 \cdot 10^4$	$3.68 \cdot 10^4$	$3.54 \cdot 10^4$	$3.55 \cdot 10^4$
14.9	$1.46 \cdot 10^4$	$1.45 \cdot 10^4$	$1.25 \cdot 10^4$	$1.56 \cdot 10^4$	$1.25 \cdot 10^4$	$1.23 \cdot 10^4$
	$1.54 \cdot 10^4$	$1.45 \cdot 10^4$	$1.23 \cdot 10^4$	$1.53 \cdot 10^4$	$1.21 \cdot 10^4$	$1.21 \cdot 10^4$
	$1.51 \cdot 10^4$	$1.43 \cdot 10^4$	$1.20 \cdot 10^4$	$1.41 \cdot 10^4$	$1.21 \cdot 10^4$	$1.23 \cdot 10^4$
15.7	$5.31 \cdot 10^4$	$4.12 \cdot 10^4$	$3.32 \cdot 10^4$	$3.58 \cdot 10^4$	$3.42 \cdot 10^4$	$3.19 \cdot 10^4$
	$5.32 \cdot 10^4$	$3.95 \cdot 10^4$	$3.19 \cdot 10^4$	$3.74 \cdot 10^4$	$3.36 \cdot 10^4$	$3.26 \cdot 10^4$
	$5.32 \cdot 10^4$	$4.02 \cdot 10^4$	$3.19 \cdot 10^4$	$3.63 \cdot 10^4$	$3.33 \cdot 10^4$	$3.22 \cdot 10^4$
15.9	$1.48 \cdot 10^4$	$1.46 \cdot 10^4$	$1.31 \cdot 10^4$	$1.47 \cdot 10^4$	$1.23 \cdot 10^4$	
	$1.50 \cdot 10^4$	$1.45 \cdot 10^4$	$1.37 \cdot 10^4$	$1.53 \cdot 10^4$	$1.25 \cdot 10^4$	$1.15 \cdot 10^4$
	$1.48 \cdot 10^4$	$1.41 \cdot 10^4$	$1.36 \cdot 10^4$	$1.50 \cdot 10^4$	$1.21 \cdot 10^4$	$1.12 \cdot 10^4$
16.7	$4.85 \cdot 10^4$	$3.78 \cdot 10^4$	$3.27 \cdot 10^4$	$3.17 \cdot 10^4$	$3.12 \cdot 10^4$	$3.26 \cdot 10^4$
	$4.73 \cdot 10^4$	$3.77 \cdot 10^4$	$3.21 \cdot 10^4$	$3.32 \cdot 10^4$	$3.11 \cdot 10^4$	$3.19 \cdot 10^4$
	$4.86 \cdot 10^4$	$3.70 \cdot 10^4$	$3.28 \cdot 10^4$	$3.26 \cdot 10^4$	$3.07 \cdot 10^4$	$3.30 \cdot 10^4$
16.8	$1.53 \cdot 10^4$	$1.51 \cdot 10^4$	$1.39 \cdot 10^4$	$1.33 \cdot 10^4$	$1.33 \cdot 10^4$	$1.43 \cdot 10^4$

	$1.55 \cdot 10^4$	$1.51 \cdot 10^4$	$1.45 \cdot 10^4$	$1.31 \cdot 10^4$	$1.36 \cdot 10^4$	$1.31 \cdot 10^4$
	$1.44 \cdot 10^4$	$1.54 \cdot 10^4$	$1.37 \cdot 10^4$	$1.34 \cdot 10^4$	$1.46 \cdot 10^4$	$1.36 \cdot 10^4$
17.7	$5.08 \cdot 10^4$	$2.96 \cdot 10^4$	$3.39 \cdot 10^4$	$2.93 \cdot 10^4$	$3.74 \cdot 10^4$	$3.41 \cdot 10^4$
	$5.09 \cdot 10^4$	$3.05 \cdot 10^4$	$3.33 \cdot 10^4$	$2.91 \cdot 10^4$	$3.85 \cdot 10^4$	$3.52 \cdot 10^4$
	$5.07 \cdot 10^4$	$2.91 \cdot 10^4$	$3.40 \cdot 10^4$	$2.94 \cdot 10^4$	$3.71 \cdot 10^4$	$3.38 \cdot 10^4$
17.8	$1.52 \cdot 10^4$	$1.80 \cdot 10^4$	$1.52 \cdot 10^4$	$1.45 \cdot 10^4$	$1.42 \cdot 10^4$	$1.35 \cdot 10^4$
	$1.49 \cdot 10^4$	$1.71 \cdot 10^4$	$1.49 \cdot 10^4$	$1.46 \cdot 10^4$	$1.48 \cdot 10^4$	$1.41 \cdot 10^4$
	$1.45 \cdot 10^4$	$1.70 \cdot 10^4$	$1.53 \cdot 10^4$	$1.47 \cdot 10^4$	$1.43 \cdot 10^4$	$1.24 \cdot 10^4$
18.8	$4.27 \cdot 10^4$	$4.77 \cdot 10^4$	$3.64 \cdot 10^4$	$3.10 \cdot 10^4$	$3.63 \cdot 10^4$	$1.24 \cdot 10^4$
	$4.42 \cdot 10^4$	$4.69 \cdot 10^4$	$3.54 \cdot 10^4$	$3.08 \cdot 10^4$	$3.54 \cdot 10^4$	$4.92 \cdot 10^4$
	$4.60 \cdot 10^4$	$4.77 \cdot 10^4$	$3.65 \cdot 10^4$	$3.06 \cdot 10^4$	$3.48 \cdot 10^4$	$3.43 \cdot 10^4$

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Table S2: Dissolved inorganic carbon concentrations ($\mu mol \cdot kg^{-1}$) during the experiment, as measured.

	High Light			Low Light		
Time (d)	Low $CO_{2(aq)}$	Intermediate $CO_{2(aq)}$	High $CO_{2(aq)}$	Low $CO_{2(aq)}$	Intermediate $CO_{2(aq)}$	High $CO_{2(aq)}$
13.0	1901.2		2278.3	1914.00	1980.1	2299.1
13.8	1894.6	2090.4	2253.6	1921.3	1983.4	2299.9
14.0	1910.6	2107.0	2255.9	1922.6	1992.6	2310.5
14.7	1909.8	2110.4		1925.7	1981.7	2304.3
14.9	1921.7	2119.5	2267.1	1925.5	1990.4	2318.6
15.7		2159.0	2280.1		1990.1	2299.5
15.9	1928.1		2287.3	1942.0	2012.5	2323.6
16.7	1930.0	2145.2	2299.7	1950.9	2016.7	2321.8
16.8	1936.6	2153.6	2299.8	1948.6	2021.6	2321.3
17.7	1928.7	2151.9	2306.7	1973.3	2022.2	2319.9
17.8	1945.6	2160.5	2307.1	1964.1	2025.0	2323.6
18.8	1931.8	2111.5	2289.5	1950.9	2024.9	2315.9

Table S3: Total Alkalinity ($\mu mol \cdot kg^{-1}$) during the experiment, as measured.

	High Light			Low Light		
Time (d)	Low $CO_{2(aq)}$	Intermediate $CO_{2(aq)}$	High $CO_{2(aq)}$	Low $CO_{2(aq)}$	Intermediate $CO_{2(aq)}$	High $CO_{2(aq)}$
13.0	2474.2	2476.1	2475.9	2474.4	2474.6	2479.7
13.8	2481.1	2479.2	2479.6	2478.3	2477.2	2480.7
14.0	2477.7	2478.8	2475.2	2471.0	2470.3	2474.9
14.7	2474.6	2475.2	2472.8	2472.8	2471.9	2476.2
14.9	2470.9	2475.8	2469.1	2472.0	2474.0	2476.8
15.7	2473.5	2475.3	2470.5	2471.7	2470.4	2477.9
15.9	2471.1	2469.9	2472.0	2474.3	2473.5	2478.5
16.7	2478.6	2475.9	2476.1	2477.0	2477.1	2485.6
16.8	2476.6	2474.7	2480.1	2477.5	2473.9	2478.5
17.7	2479.3	2475.4	2483.4	2476.9	2475.0	2478.8
17.8	2474.9	2477.7	2481.3	2484.3	2476.0	2477.4
18.8	2483.5	2480.4	2489.2	2479.8	2478.4	2483.3

Table S4: Nitrate concentrations during the experiment

	High Light			Low Light		
Time (d)	Low $CO_{2(aq)}$	Intermediate $CO_{2(aq)}$	High $CO_{2(aq)}$	Low $CO_{2(aq)}$	Intermediate $CO_{2(aq)}$	High $CO_{2(aq)}$
13.0	56.5	56.3	58.3	57.3	57.0	57.1
13.8	53.3	52.6	56.1	55.5	55.5	55.0
14.0	55.9	55.6	58.4	57.2	57.4	57.9
14.7			56.5	55.7	55.5	54.9
14.9	56.4	56.3	59.1	57.4	57.5	57.5
15.7	53.1	54.1	56.9	56.2	55.8	55.4
15.9	56.7	56.4	58.9	57.6	57.8	57.7
16.7	53.7	54.3	57.2	56.4	55.6	55.4
16.8	56.6	56.2	59.3	57.9	56.9	57.3
17.7	53.3	54.1	56.8	56.6	54.7	55.1
17.8	56.7	55.4	58.7	57.7	56.5	57.1
18.8	52.4	52.0	55.8	55.9	54.0	54.3

Table S5: Phosphate concentrations during the experiment

	High Light			Low Light		
Time (d)	Low $CO_{2(aq)}$	Intermediate $CO_{2(aq)}$	High $CO_{2(aq)}$	Low $CO_{2(aq)}$	Intermediate $CO_{2(aq)}$	High $CO_{2(aq)}$
13.0	3.4	3.5	3.5	3.5	3.5	3.4
13.8	3.2	3.3	3.4	3.4	3.4	3.3
14.0	3.3	3.4	3.5	3.5	3.5	3.4
14.7			3.4	3.4	3.4	3.3
14.9	3.4	3.4	3.6	3.5	3.5	3.4
15.7	3.2	3.3	3.4	3.4	3.4	3.3
15.9	3.5	3.6	3.6	3.6	3.8	3.5
16.7	3.3	3.3	3.4	3.5	3.4	3.3
16.8	3.4	3.4	3.5	3.6	3.5	3.4
17.7	3.3	3.3	3.4	3.5	3.4	3.3
17.8	3.4	3.4	3.5	3.5	3.5	3.4
18.8	3.2	3.2	3.3	3.4	3.4	3.2

Figure S1A and B: The difference between the predicted and measured alkalinity ($A_{T(pred-meas)}$, $\mu mol \cdot kg^{-1}$, as described in the materials and methods) plotted against the particulate organic carbon concentration (POC, µM) in a linear regression plot. A. data from all cultures (y=-0.14x+13.24, r^2=0.03). B. high light data (HL, open circles and solid regression line, y=-0.35+24.29, r^2=0.31) and low light data (LL, closed circles and dashed regression line, y= 0.50x-11.31, r^2=0.10) are plotted separate.